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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,036	01/19/2005	Kenji Maruyama	SHIGA7.004APC	1510

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EXAMINER

LEE, SIN J

ART UNIT	PAPER NUMBER
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1752

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	03/06/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 03/06/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/522,036	MARUYAMA ET AL.	
	Examiner	Art Unit	
	Sin J. Lee	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/8/07, 2/22/07.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-10,13-18,21,22,30,31,39 and 40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-10,13-18,21,22,30,31,39 and 40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>2/22/07</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. In view of the amendment of February 8, 2007, previous 112 rejection on claims 30, 31, 39 and 40 is hereby withdrawn.
2. Due to newly cited prior art, the following rejections are made non-final with the Examiner's sincere apology.

Claim Rejections - 35 USC § 112

3. Claim 10 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 recites "[a] method for synthesis of the component (A) of claim 1 . . .". That is, claim 10 is a method claim. However, claim 1, from which claim 10 depends, is a composition claim. Thus, the scope of claim 10 is indefinite. In order to overcome instant rejection, applicants need to change claim 10 to read "[t]he chemical amplification type positive photoresist composition according to claim 1, in which the component (A) is made by reacting the novolak resin with a crosslinking agent . . .".

Appropriate correction is required.

4. Claims 15-18, 21 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 15 and 16, applicants recite that the component (A1) comprises a unit (A1') derived from (α -methyl)hydroxystyrene represented by the formula (I'). Yet, in the

Art Unit: 1752

formula, R is said to be H atom or a methyl group: for (α -methyl)hydroxystyrene, R has to be a methyl group.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1, 4-10, 13, 14, 30, 31, 39 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bantu et al (6,072,006).

In Example 2, Bantu teaches synthesis of poly[p-(cyclohexyloxyethoxy)styrene/p-hydroxystyrene] which is prepared by reacting poly(p-hydroxystyrene) and cyclohexyl vinyl ether. In Example 4, Bantu teaches a resist composition containing the polymer of Example 2, a triphenylsulfonium salt (a photoacid generator) and a base additive. Bantu spin-coats his resist composition onto a wafer. The coated photoresist is exposed to 248 nm wavelength light, subjected to a post exposure bake and then developed. Bantu teaches (col.11, lines 59-67, col.12, lines 1-8) that the base additive is being used to *scavenge protons* present in the photoresist prior to being irradiated by the actinic radiation and that the base prevents attack and cleavage of the acid labile groups by the *undesirable acids*, thereby increasing the performance and *stability* of the resist. Since Bantu is using the base to reduce the amount of undesirable acids in the composition, it is the Examiner's position that Bantu's composition would inherently have the present range for the content of the acid component. Or, at least, the present range for the content of an acid component would have been obvious to one skilled in

Art Unit: 1752

the art at the time the invention was made because it has been held that discovering an optimum value of a results effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Bantu also teaches the equivalence of polyhydroxystyrene and novolaks as the reactant polymers (see col.4, lines 1-12). Therefore, it would have been obvious to one skilled in the art to use novolak polymer in Bantu's Example 2 as the reactant polymer with a reasonable expectation of obtaining a photoresist having high contrast, increased sensitivity and improved high temperature flow characteristics. Bantu also teaches that his polymer can additionally contain alkali insoluble monomer unit such as styrene (see col.7, lines 64-67, col.8, lines 1-6). Bantu also teaches the coating thickness to be in the range of 0.1-10 um (see col.12, lines 30-35). This range overlaps with present range of 2-7 um and thus the prior art's teaching renders obvious present range. In the case "where the [claimed] ranges overlap or lie inside ranges disclosed by the prior art," a prima facie case of obviousness would exist which may be overcome by a showing of unexpected results, In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Therefore, Bantu renders obvious present inventions of claims 1, 4-10, 13, 14, 30, 31, 39 and 40.

7. The Examiner would like to point out that if applicants insert the limitation of the component (B1) being a poly(bissulfonyl)diazomethane photoacid generator in claims 1, 30 and 39, the 103(a) rejection on those claims over Bantu would be overcome.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333.

Art Unit: 1752

The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

S. Lee

S. Lee
February 28, 2007

Sin J. Lee

SIN LEE
PRIMARY EXAMINER